

**AMENDMENTS TO THE SPECIFICATION**

**IN THE SPECIFICATION:**

**Page 3**

Please amend the paragraph beginning on line 23 through Page 4, line 7 as follows:

When the illumination ratio is 50%, light source lamp 111 is turned off during the period from time t1 to time t2 within one field period T and turned on during the period from time t2 to time t3, by pulsing application of electric power from power source 12 112 (see Fig. 2). When the illumination ratio is 25%, the lamp is turned off during the period from time t1 to time t6 within one field period T and turned on during the period from time t6 to time t3, by pulsing application of electric power from power source 12 (see Fig. 2).

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Please amend the paragraph beginning on line 17 through line 20 as follows:

The fifth invention is characterized in that, in the first to ~~fourth~~ third invention, the gray scale levels of the input image signal are varied in accordance with the illumination duration of the backlight.

Please amend the paragraph beginning on line 21 through line 25 as follows:

The sixth invention is characterized in that, in the first to ~~fourth~~ third invention, the gray scale voltages applied to the liquid crystal display panel in response to the input image signal are varied in accordance with the illumination duration of the backlight.

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Please amend the paragraph beginning on line 1 through line 3 as follows:

The seventh invention is characterized in that, in the first to ~~sixth~~ third invention, the frame frequency of the input image signal is varied based on the type of the image content.

Please amend the paragraph beginning on line 4 through line 7 as follows:

The eighth invention is characterized in that, in the first to ~~seventh~~ third invention, the type of the image content to be displayed is detected based on the contents information included in the broadcast data.

Please amend the paragraph beginning on line 8 through line 11 as follows:

The ninth invention is characterized in that, in the first to ~~seventh~~ third invention, the type of the image content to be displayed is detected based on the contents information obtained from external media.

Please amend the paragraph beginning on line 12 through line 15 as follows:

The tenth invention is characterized in that, in the first to ~~seventh~~ third invention, the type of the image content to be displayed is detected based on the video source select command information input by the user.

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Please amend the paragraph beginning on line 4 through line 7 as follows:

The thirteenth invention is characterized in that, in the eleventh ~~or twelfth~~ invention, the gray scale levels of the input image signal are varied in accordance with the application duration of the black display signal.

Please amend the paragraph beginning on line 8 through line 12 as follows:

The fourteenth invention is characterized in that, in the eleventh ~~or twelfth~~ invention, the gray scale voltages applied to the liquid crystal display panel in response to the input image signal are varied in accordance with the application duration of the black display signal.

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Please amend the paragraph beginning on line 1 through line 4 as follows:

The twenty-eighth invention is characterized in that, in the twenty-fourth to ~~twenty-seventh~~ twenty-sixth invention, the gray scale levels of the input image signal are varied in accordance with the illumination duration of the backlight.

Please amend the paragraph beginning on line 5 through line 9 as follows:

The twenty-ninth invention is characterized in that, in the twenty-fourth to ~~twenty-seventh~~ twenty-sixth invention, the gray scale voltages applied to the liquid crystal display panel in response to the input image signal are varied in accordance with the illumination duration of the backlight.

Please amend the paragraph beginning on line 10 through line 13 as follows:

The thirtieth invention is characterized in that, in the twenty-fourth to ~~twenty-ninth~~ twenty-sixth invention, the frame frequency of the input image signal is varied based on the user's instruction.

Please amend the paragraph beginning on line 14 through line 17 as follows:

The thirty-first invention is characterized in that, in the twenty-fourth to ~~thirtieth~~ twenty-sixth invention, the illumination duration of the backlight is varied based on the video source select command information input by the user.

Please amend the paragraph beginning on line 18 through line 21 as follows:

The thirty-second invention is characterized in that, in the twenty-fourth to ~~thirtieth~~ twenty-sixth invention, the illumination duration of the backlight is varied based on the video adjustment command information input by the user.

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Please amend the paragraph beginning on line 10 through line 13 as follows:

The thirty-fifth invention is characterized in that, in the thirty-third ~~or thirty-fourth~~ invention, the gray scale levels of the input image signal are varied in accordance with the application duration of the black display signal.

Please amend the paragraph beginning on line 14 through line 18 as follows:

The thirty-sixth invention is characterized in that, in the thirty-third ~~or thirty-fourth~~ invention, the gray scale voltages applied to the liquid crystal display panel in response to the input image signal are varied in accordance with the application duration of the black display signal.

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Please amend the paragraph beginning on line 7 through line 19 as follows:

The device further includes: a bottom-emitting backlight 7 arranged on the back of the liquid crystal display panel 6; a light source driver 8 for implementing intermittent drive, i.e., turning on/off the backlight 7 in one vertical display period (one frame period); a synchronizing signal extractor 9 for extracting synchronizing signals from the input image signal decoded through the image decoder 2; and a control CPU 10 which acquires and analyzes contents information from the control data separated through a demultiplexer 1 and outputs a control signal to light source driver 8 so as to control the on/off timing of backlight 7 based on the vertical synchronizing signal extracted through the synchronizing signal extractor 79.

Page 36

Please amend the paragraph beginning on line 24 through Page 37, line 10 as follows:

Therefore, as shown in Fig. 10(b), the frame frequency of the input image signal is converted eightfold into 480 Hz so as to reduce the image write-scanning duration to ~~25%~~ 2.5% of one frame period, and after the image write-scan has been completed, backlight 7 is activated

after a lapse of the predetermined liquid crystal response time (here 25% of one frame period), so that the backlight illumination duration (image display duration) is increased. Thereby, the impulse ratio is set to be 62.5% and it is possible to reproduce smooth motion of moving objects by preventing occurrence of blur injuries while suppressing occurrence of image quality defects such as stroboscopic effect, flickering and the like.

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Please amend the paragraph beginning on line 17 through line 25 as follows:

For this reason, as shown in Fig. 10(c), with no conversion of the frame frequency of the input image signal implemented, backlight 3 7 is controlled so as to be continuously and fully activated (continuous illumination) without regard to the liquid crystal response duration, the impulse ratio is switched to be 100% (full hold-type display mode), whereby it is possible to reproduce smooth motion of moving objects (image quality defects such as stroboscopic effect, flickering etc., will be alleviated as moving objects blur).

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Please amend the paragraph beginning on line 6 through line 17 as follows:

Illustratively, as shown in Fig. 11, in the present embodiment, scanning (image writing) of a certain group of horizontal lines (divided display section) has been completed, then the luminous section (made of a group of fluorescent lamps or a group of LEDs) of backlight 3 7 corresponding to the group of horizontal lines is activated taking into account a lapse of the LC

response delay. This process is repeated one to the next in the vertical direction. In this way, it is possible to sequentially shift the backlight illumination duration corresponding to the write-scanning section of the image signal, from one luminous section to the next with the passage of time, as indicated by hatching in Fig. 11.

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Please amend the paragraph beginning on line 2 through line 14 as follows:

Moreover, in the above embodiment, backlight 7 is divided into eight luminous sections (groups of horizontal lines) so that the sections are sequentially illuminated scan-wise. However, the backlight may be divided into any number of luminous sections as long as it is divided into two or more. Further, it is obvious that backlight 3 7 is not necessarily divided into horizontal strips (parallel to the scan lines) of luminous sections. Also in this respect, use of a bottom-emitting planar LED device as a backlight 7 can afford improved flexibility for designing the divided luminous sections, compared to the others. Further, use of a LED device as a backlight 7 also makes it possible to control the backlight brightness relatively easily by regulating its drive current.

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Please amend the paragraph beginning on line 15 through line 25 as follows:

If the impulse ratio is made lower without change of the luminous brightness of backlight 7 17, pixels with low brightness values are marred, hence the input image signal levels (gray scale levels) are converted so as to increase the display brightness and enhance the contrast in

dark gray scales. Alternatively, if the impulse ratio is made higher, pixels with high brightness values are marred, hence the input image signal levels (gray scale levels) are converted so as to decrease the display brightness and enhance the contrast in light gray scales. Thus, it is possible to achieve vivid image display.

Page 84

Please amend the paragraph beginning on line 23 through Page 85, line 10 as follows:

For example, Figs. 30(a) to (c) show an operational example of switching of the image display duration in one frame period, into three classes, i.e.,  $5/8$  frame period,  $1/2$  frame period and  $3/8$  frame period, respectively. When image quality degradation due to stroboscopic effect and flickering needs to be reduced, as shown in Fig. 30(a) the image scanning of a certain group of horizontal lines has been completed, then immediately after a lapse of just the predetermined liquid crystal response time (here, a  $1/4$  frame period), the luminous section of backlight 3 17 corresponding to the group of horizontal lines is activated and kept lit for the backlight illumination duration until the image write-scan of the next frame starts.

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Please amend the paragraph beginning on line 6 through line 21 as follows:

Next, the operation of varying the gray scale voltage to be applied to liquid crystal display panel 6 16 will be described. Reference gray scale voltage generator 132 supplies a referent gray scale voltage to signal line drive circuit 134 based on the reference gray scale voltage data stored in reference gray scale voltage data storage 131. Herein, reference gray scale



voltage data storage 131 stores sets of reference gray scale voltage data for different impulse ratios, as shown in Fig. 18, (here, the sets for an impulse ratio of 100% corresponding to hold type display and for an impulse type display with an impulse ratio of 50% are shown), in separate ROM areas. Control CPU 20 selects and designates one from these and outputs it to reference gray scale voltage generator 132. The reference gray scale voltage data stored in reference gray scale voltage data storage 131 is set up in the following manner.